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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,808	03/20/2006	Sumio Iijima	2005_1993A	9003

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EXAMINER	
MILLER, DANIEL H	

ART UNIT	PAPER NUMBER
1794	

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09/15/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/560,808	IIJIMA ET AL.	
	Examiner	Art Unit	
	DANIEL MILLER	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-11* is/are pending in the application.

4a) Of the above claim(s) *10 and 11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 6-9 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura (US 6,706,431).

3. Kawamura teaches a fuel cell having an electrode or catalyst formed from nanohorns and also comprising fullerene encapsulated Lanthanum (abstract and column 4 lines 15-20, 45-50). The material can be formed into an electrode using glue to adhere the electrode together; or the inherent tendency of carbonaceous materials to conglomerate together via Van Der Wall forces. Therefore, the Lanthanum filled fullerene and hence the Lanthanum would be considered to be deposited on the single walled nanohorn, or in the alternative, it would be obvious to provide a single walled nanohorn with Lanthanum in order to maximize catalytic effect of carbon material. The addition of Lanthanum to fullerenes and other family of carbon allows the composite to function as a hydrogen storage electrode (column 4 line 50-60).

4. Regarding claim 7, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the percentage of Lanthanum in order to obtain the

level of catalytic effect desired and in so doing obtain the broad molar ratio claimed by applicant. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

5. It is noted that methane adsorptivity is an inherent to the claimed material and the trait is not otherwise indicative of patentability. Since the structure of Kawamura is substantially similar to applicants it would be expected to have similar methane adsorptivity properties. No patentable distinction is seen.

Response to Arguments

6. Applicant's arguments filed 5/29/2008 have been fully considered but they are not persuasive.

7. The double patenting rejection has been withdrawn due to applicant's submission of a terminal disclaimer.

8. It is noted that methane adsorptivity is inherent to the claimed material and the trait is not otherwise indicative of patentability. Since the structure of Kawamura is substantially similar to applicants it would be expected to have similar methane adsorptivity properties. No patentable distinction is seen.

9. Applicant has not addressed why it would not be obvious to provide nanohorns with a lanthanide attached similar to the fullerene with lanthanide, as disclosed by applicant or why the lanthanide fullerene taught by the reference in contact with aggregates of nanohorns of Kawamura would not meet the claim limitations.

10. It would be obvious to provide a single walled nanohorn with Lanthanum in order to maximize catalytic effect of carbon material. The addition of Lanthanum to fullerenes and other family of carbon allows the composite to function as a hydrogen storage electrode (column 4 line 50-60). Further, the lanthanide fullerene material has the advantage of being capable of functioning in extreme acidic conditions (column 4 lines 55-60).

11. Applicant has argued that the reference does not teach a mixture of carbon element. However, the reference discloses mixing the fullerenes with other carbon materials to produce a catalytic effect (see column 4 lines 50-60). Further, "(i)t is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

12. No patentable distinction is seen.

13. Rejection maintained.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MILLER whose telephone number is (571)272-1534. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571)272-14011. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Daniel Miller

/KEITH D. HENDRICKS/
Supervisory Patent Examiner, Art Unit 1794